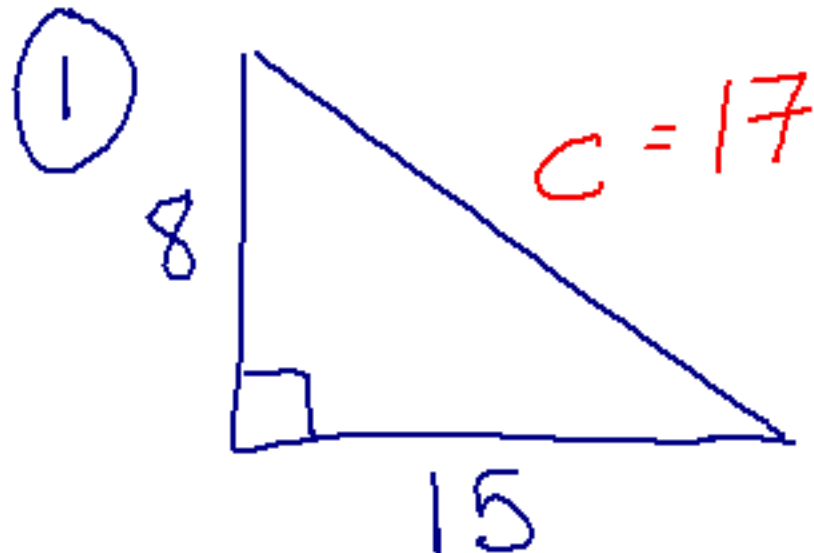
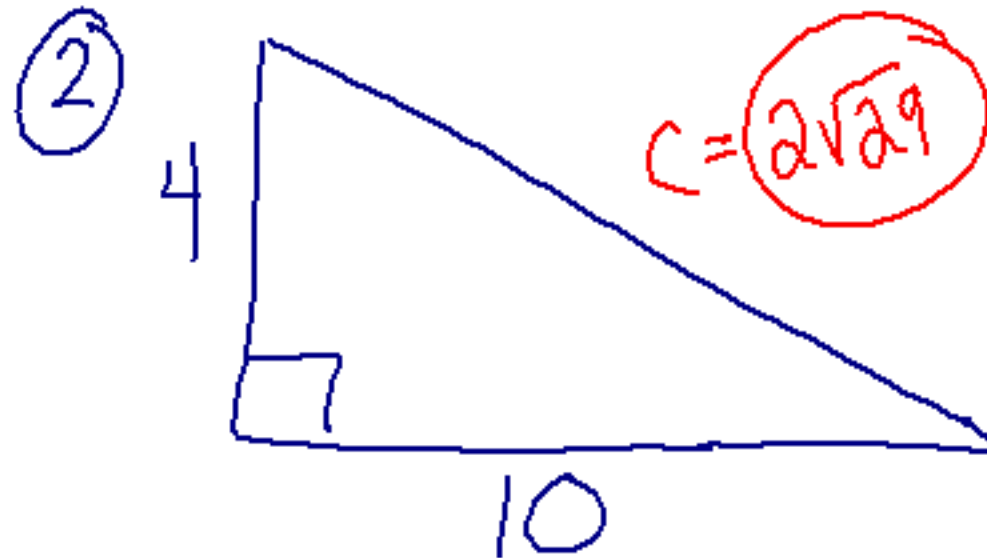


Find all sides:

WARM UP



$$8^2 + 15^2 = c^2$$



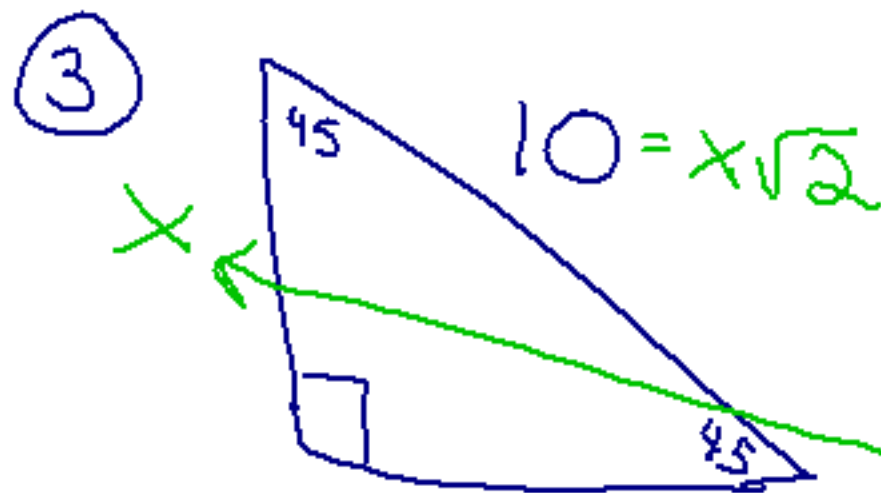
$$4^2 + 10^2 = c^2$$

$$116 = c^2$$

$$c = \sqrt{116}$$

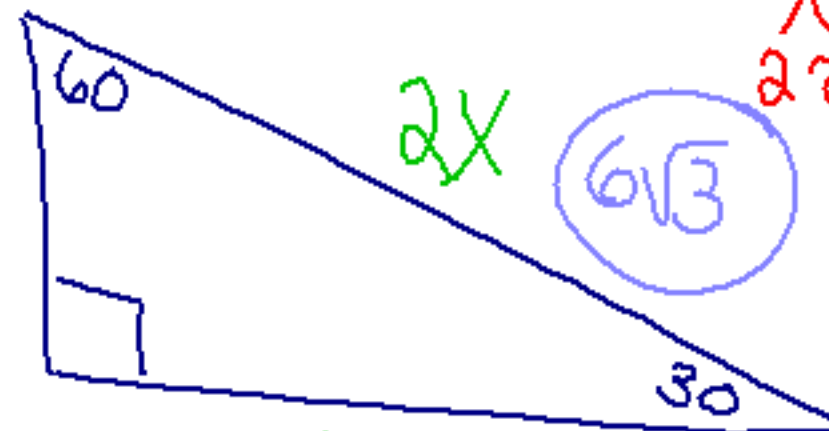
$$= \sqrt{4 \cdot 29}$$

$$= 2\sqrt{29}$$



④

$3\sqrt{3} = x$



$$\frac{x\sqrt{3}}{\sqrt{3}} = \frac{9}{\sqrt{3}}$$

$$x = \frac{9}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$x = \frac{9\sqrt{3}}{3} = 3\sqrt{3}$$

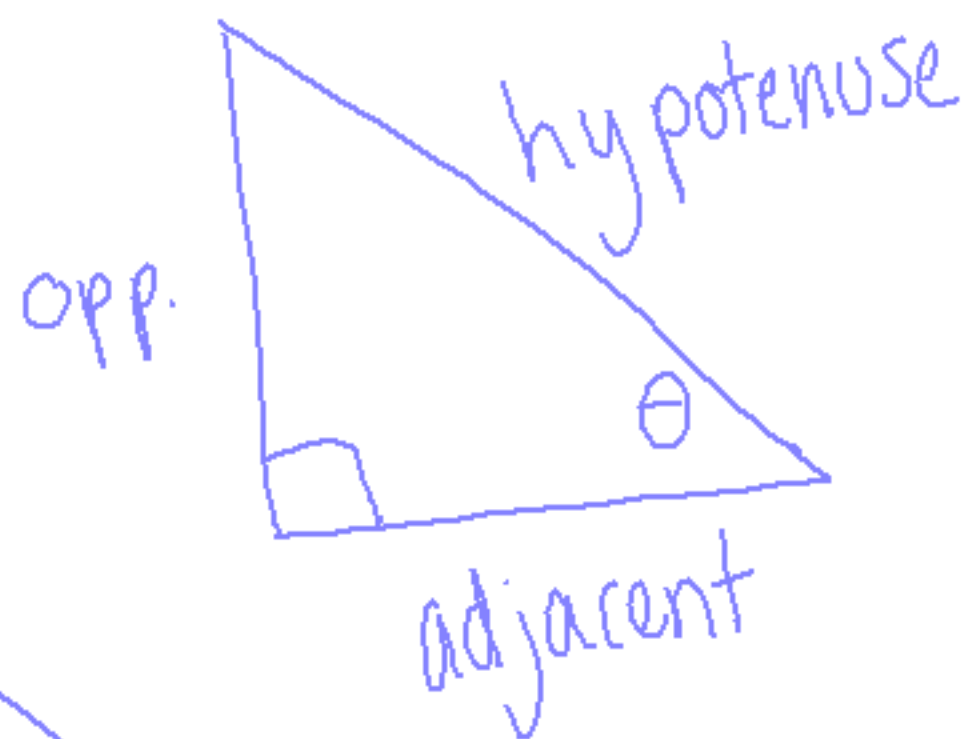
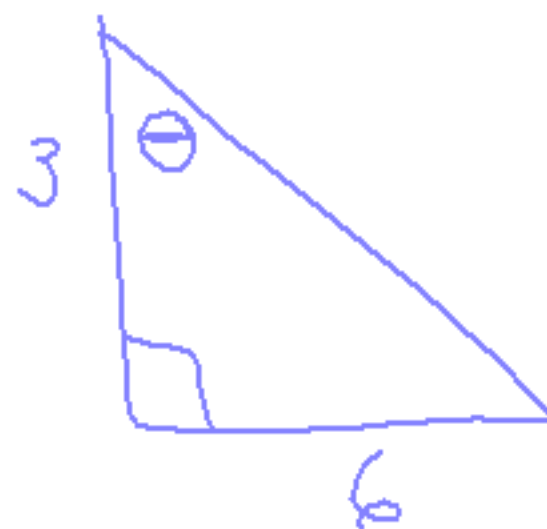
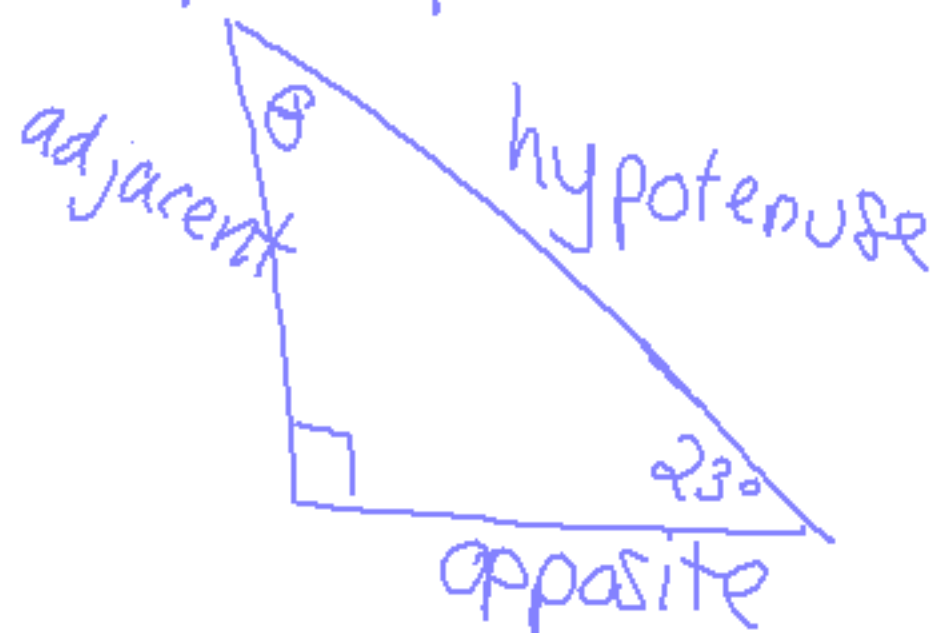
$$\frac{10}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$$

$$\frac{10}{\sqrt{2}} = x$$

$$\frac{10\sqrt{2}}{2} = 5\sqrt{2}$$

TRIGONOMETRY

- triangle measure
- sides > of triangles
angles
- θ = theta
- perspective

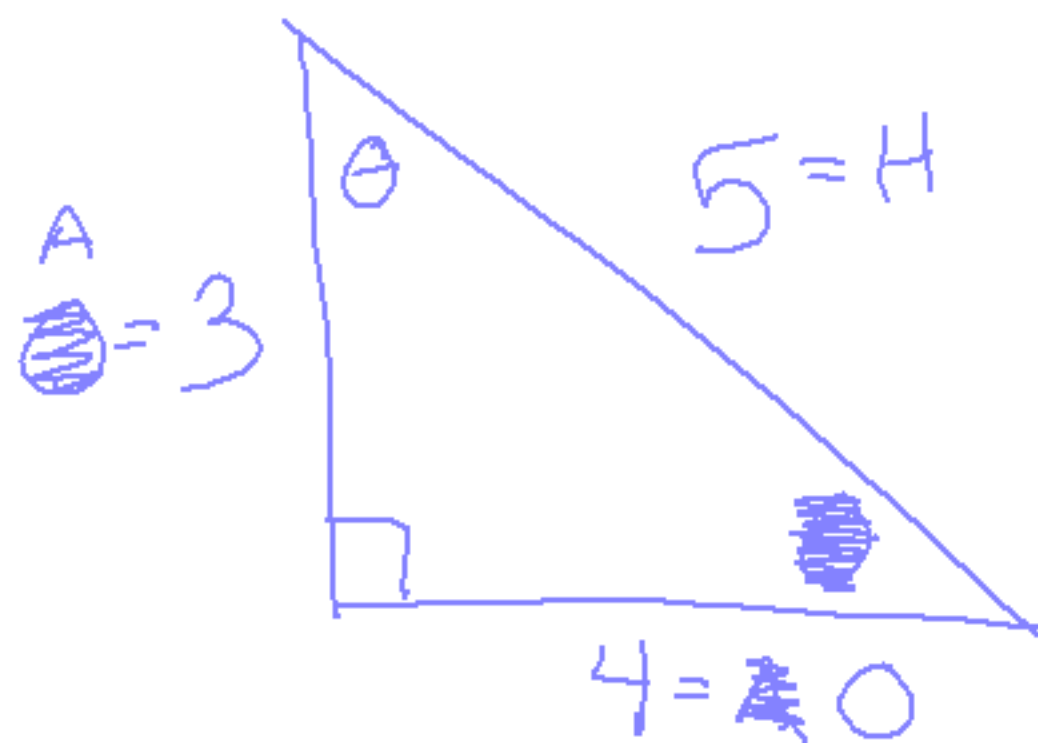


(sign)
 $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{O}{H}$

(co-sign)
 $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{A}{H}$

(tangent)
 $\tan \theta = \frac{\text{opposite}}{\text{adjacent}} = \frac{O}{A}$

SOHCAHTOA

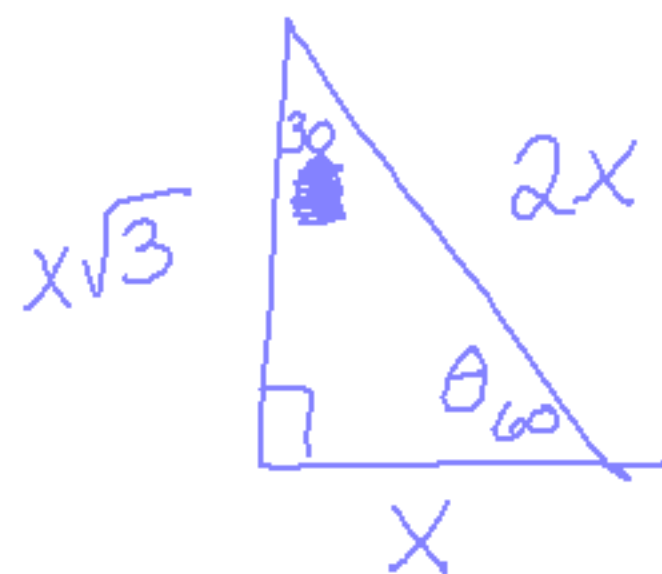


$$\sin \theta = \frac{O}{H} = \frac{3}{5}$$

$$\cos \theta = \frac{A}{H} = \frac{4}{5}$$

$$\tan \theta = \frac{O}{A} = \frac{3}{4}$$

30, 60, 90



*

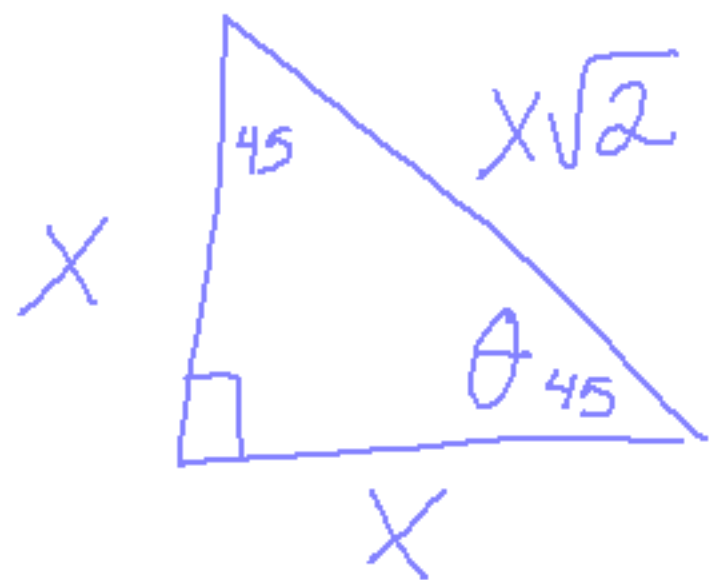
	sin	cos	tan
30	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}} \leftarrow \frac{\sqrt{3}}{3}$
60	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$

$$\sin(60) = \frac{O}{H} = \frac{x\sqrt{3}}{2x} = \left(\frac{\sqrt{3}}{2}\right)$$

$$\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$\cos(60) = \frac{A}{H} = \frac{x}{2x} = \left(\frac{1}{2}\right)$$

$$\tan(60) = \frac{O}{A} = \frac{x\sqrt{3}}{x} = \frac{\sqrt{3}}{1} = \left(\sqrt{3}\right)$$

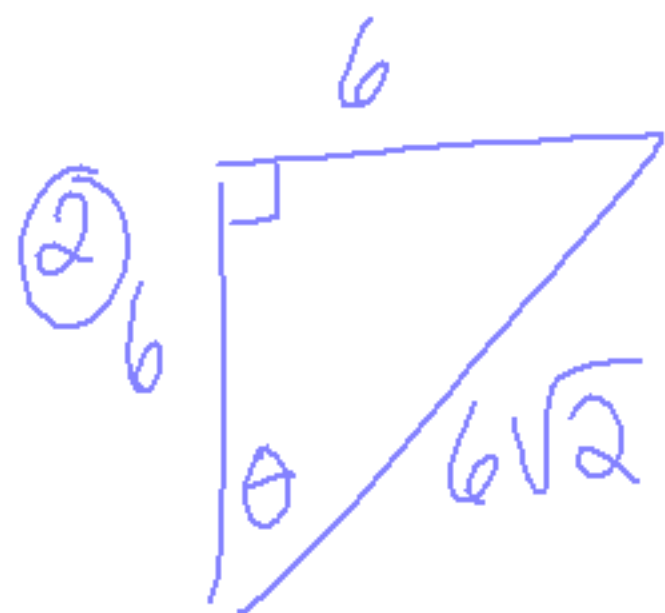


	sin	cos	tan
45	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1

$$\sin(45) = \frac{O}{H} = \frac{X}{X\sqrt{2}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\cos(45) = \frac{A}{H} = \frac{X}{X\sqrt{2}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\tan(45) = \frac{O}{A} = \frac{X}{X} = 1$$



$$\sin \theta = \frac{O}{H} = \frac{6}{6\sqrt{2}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\cos \theta = \frac{A}{H} = \frac{6}{6\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\tan \theta = \frac{O}{A} = \frac{6}{6} = 1$$